

# Work Order ID 68789

Thursday, April 21, 2011 8:12:36 AM



Page 1

Item ID: D3220-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Doubler Assembly

Start Date: 4/20/2011 Start Qty: 5.00



Cust Item ID:

Required Date: 4/25/2011 Req'd Qty: 5.00

Customer:

Reference:

Approvals:

Process Plan:

*[Signature]*

Date: 4-04-21

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D3220

B

100

0.00



FLOW WATER JET

Waterjet

Memo

0.00

FLOW CNC Waterjet

1-Cut D3220-1 as per Dwg D3220

Dwg Rev: B

Prog Rev: B

2-Deburr if necessary

B11-5-4

110

QC2- Inspect parts off machine FAI/FAIB

0.00



QC

Memo

0.00

Quality Control

B11-5-4

120

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

8 w/stop

(x6)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 68789**

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Page 2

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Revision ID:

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Start Date: 4/20/2011 Start Qty: 5.00



Cust Item ID:

Required Date: 4/25/2011 Req'd Qty: 5.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130		0.00							
	Small Fab								
Small Fab	Memo	0.00							
Small Fab	1-Deburr 2-C'sink D3220-1 as per Dwg D3220								
140		0.00							
	QC5- Inspect part completeness to step on W/O								
QC	Memo	0.00							
Quality Control									
150		0.00							
	Chemical Conversion Coat per QSI005 4.1								
HandFinish	Memo	0.00							
Hand Finishing									

4/21/05/04 (6)

(x6)  
-01

x6 4 20 11/05/04

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

**Work Order ID 68789**

Thursday, April 21, 2011 8:12:36 AM



Page 3

Item ID: D3220-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Doubler Assembly

Start Date: 4/20/2011 Start Qty: 5.00



Cust Item ID:

Required Date: 4/25/2011 Req'd Qty: 5.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

6X Q m-l 4/05/06

170



Small Fab

Small Fab

Small Fab

Memo

0.00

0.00

Assemble D3220-041 doubler as per Dwg D3220

EB 4/05/09 6

180



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

8 mos 09

76

241

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

**Work Order ID 68789**

Thursday, April 21, 2011 8:12:36 AM



Page 4

Item ID: D3220-041

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Setup Start



Revision ID:

Stop



Item Name: Doubler Assembly

Start Date: 4/20/2011 Start Qty: 5.00



Cust Item ID:

Required Date: 4/25/2011 Req'd Qty: 5.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

190

Identify as per dwg & Stock Location: 177

0.00

Packaging

Memo

0.00

Packaging

11/5/9 SP (60)

200



QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

11/5/9 JH

ME

11-05-09

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Thursday, April 21, 2011 8:12:45 AM

Page 1

Work Order ID: 68789

Parent Item: D3220-041

Parent Item Name: Doubler Assembly



Start Date: 4/20/2011

Required Date: 4/25/2011

Start Qty: 5.00

Required Qty: 5.00

Comments: IPP Rev:A New Issue 05-11-06 JLM  
IPP: B 06.11.15 waterjet EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M2024T3S.050  2024-T3 .050 sheet		Purchased	No			100	sf	23.6488	0.6926	3.645263			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				MAT22		23.648842							
				114968		23.648842							
MS20426AD3-3  Rivet		Purchased	No			170	Each	2,867.000	8	40			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST316		2867							
				19099		2867							
MS21059L4  Nutplate		Purchased	No			170	Each	46.0000	4	20			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST302		46							
				116582		46							

11-5-13

114968

EP 11/05/09

48

EP 11/05/09

24

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 68789
<b>Description:</b> Doubler		<b>Part Number:</b> D3220-1
<b>Inspection Dwg:</b> D3220	<b>Rev:</b> B	<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
5.50	+/-0.030	5.503	✓		V HB01	
14.25	+/-0.030	14.25	✓		T HB02	
R0.50	+/-0.030	.50	✓		R.G.	
7.00	+/-0.030	6.994	✓		V	
7.000	+/-0.005	6.998	✓		V	
1.50	+/-0.030	1.502	✓		V	
1.000	+/-0.005	.999	✓		V	
0.500	+/-0.005	.500	✓		V	
1.000	+/-0.005	1.001	✓		V	
0.316	+0.005/-0.000	.318	✓		V	
0.098	+0.005/-0.000	.102	✓		V	
0.050 thick	+/-0.005	.050	✓		V	
Grain Direction	N/A		✓			

<b>Measured by:</b> R	<b>Audited by:</b> S	<b>Prototype Approval:</b>	N/A
<b>Date:</b> 11-5-4	<b>Date:</b> 11/05/04	<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	04.02.27	New Issue P/O D3220-041	KJ/RF	
B	10.02.02	Dwg Rev updated	KJ	

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

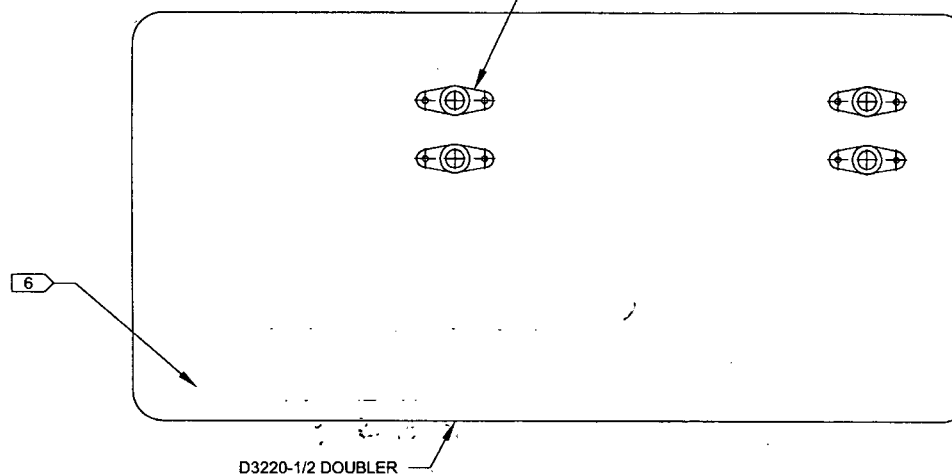
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action		Section B		Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng		Sign & Date			

**NOTE:** Date & initial all entries

Item	Qty -041	Qty -042	Part Number	Description
1	X		D3220-041	DOUBLER ASSEMBLY
2		X	D3220-042	DOUBLER ASSEMBLY
3	1		D3220-1	DOUBLER
4		1	D3220-2	DOUBLER
5	4	4	MS21059L4	NUTPLATE
6	8	8	MS20426AD3-3	RIVET

MS21059L4 NUTPLATE  
MS20426AD3-3 RIVET, 2X  
4 PL



SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 68789  
2/11-04-21

**RELEASED**  
2009-09-09

**D3220-041 DOUBLER ASSEMBLY (SHOWN WITH D3220-1 DOUBLER)**  
**D3220-042 (OPPOSITE)**

# NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3220-04X" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: D3220-041 = 0.53 lbs  
D3220-042 = 0.53 lbs

B	DRAWING UPDATED TO CURRENT STANDARDS. Ø0.316 WAS Ø0.323 (ZN C8-2, B4-3); MS20426AD3-3 WAS MS20426AD3-4 (ZN D4-1); CORRECT TYPO NOTE 1 (ZN A8-2, A8-3); REF PAR 09-025	RF	09.07.08
A	NEW ISSUE	CP	03.10.16
REV.	DESCRIPTION	BY	DATE
DESIGN	DS		
DRAWN	RF		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	09.07.08		

**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D3220** REV. B  
SHEET 1 OF 4  
TITLE **DOUBLER** SCALE  
NTS

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

8 7 6 5 4 3 2 1

D

D

C

C

B

B

A

A

Ø0.098  
CSK Ø0.180x100°  
NEAR SIDE, 8 PL

**B**  
Ø0.316  
TYP, 4 PL

GRAIN  
DIRECTION

0.500 TYP

1.000 TYP

R0.50  
TYP

14.25

7.000

5.50

1.50

1.000

7.00

81-2  
SEE DETAIL A  
TYP

100°  
REF

0.050  
REF

**DETAIL A**  
SCALE 5X

**D3220-1 DOUBLER**

u1648789

**RELEASED**  
2009-09-08  
no

**B**

**NOTES:**

- 1) MATERIAL: 2024-T3 ALUMINUM SHEET, 0.050 THICK  
REF DART SPEC. M2024T3S.050
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3220-1" USING REMOVABLE TAG
- 7) WEIGHT: 0.50 lbs

DESIGN	DS	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	SP	DRAWING NO.	REV. B
MFG. APPR.	MS	D3220	SHEET 2 OF 4
APPROVED	MS	TITLE	SCALE
DE APPR.	MS	DOUBLER	NTS
DATE	09.07.08	<small>COPYRIGHT © 2003 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

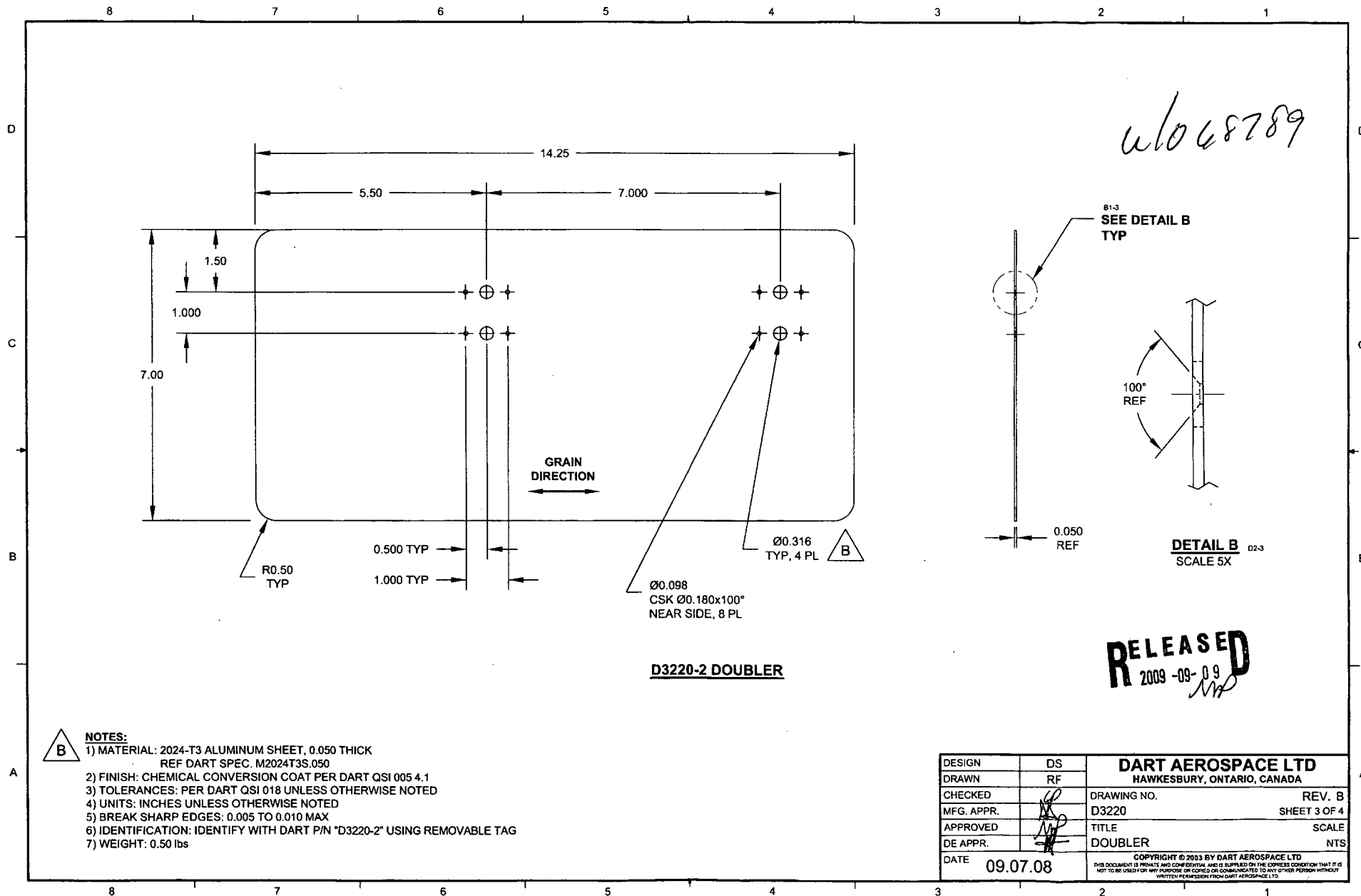
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries





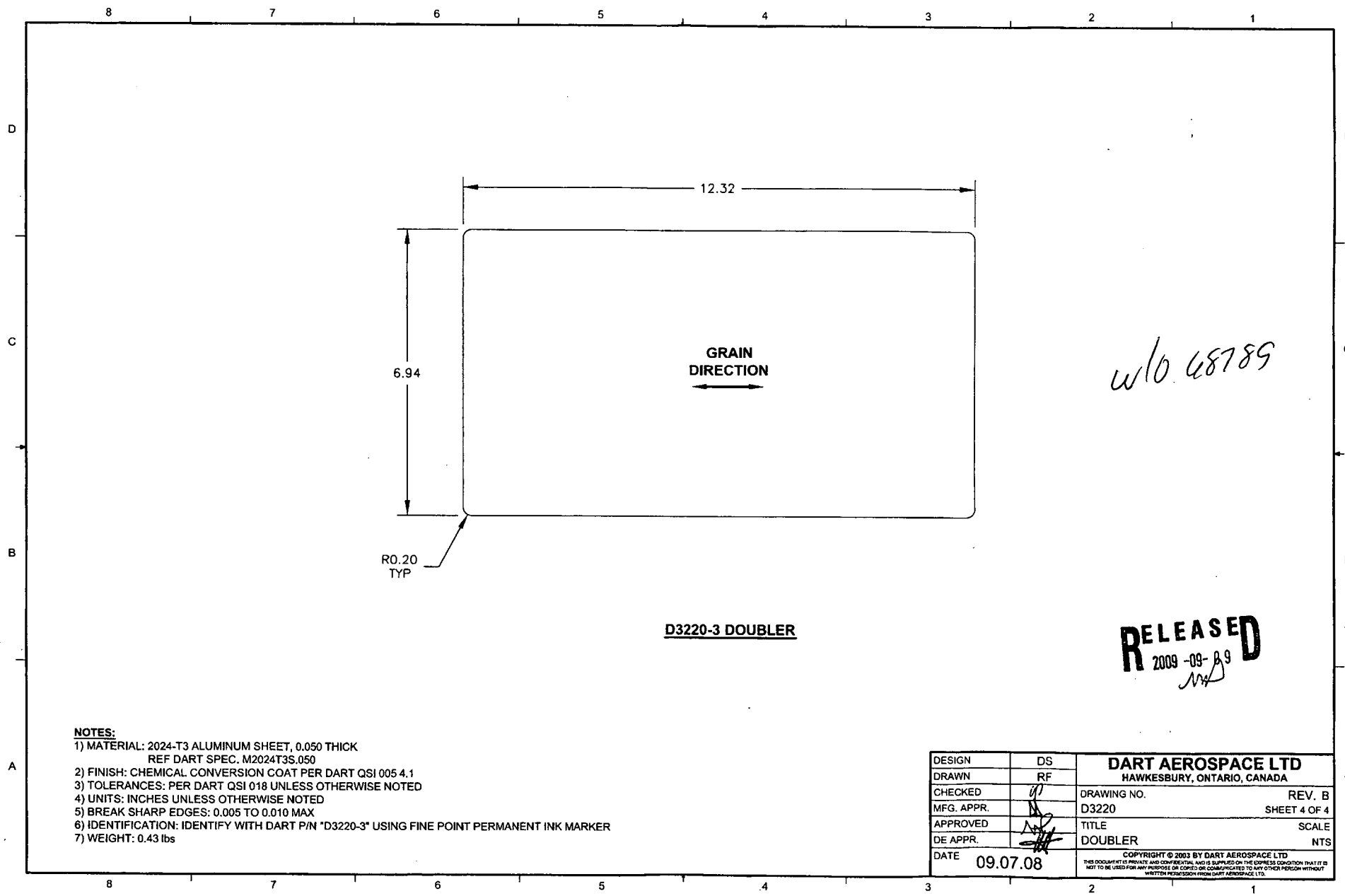
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**NOTE:** Date & initial all entries



W/O 48789

**D3220-3 DOUBLER**

**RELEASED**  
2009-09-09

**NOTES:**

- 1) MATERIAL: 2024-T3 ALUMINUM SHEET, 0.050 THICK  
REF DART SPEC. M2024T3S.050
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3220-3" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.43 lbs

DESIGN	DS	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	UT	DRAWING NO.	REV. B
MFG. APPR.	NA	D3220	SHEET 4 OF 4
APPROVED	NA	TITLE	SCALE
DE APPR.	NA	DOUBLER	NTS
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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